WHAT IS CLAIMED IS:

1. An exhaust gas cleaning method for internal combustion engine wherein exhaust gas having an air-fuel ratio higher than theoretical air-fuel and exhaust gas having an air-fuel ratio equal to or smaller than theoretical air-fuel ratio are alternately made to contact a catalyst to clean the exhaust gas discharged from the internal engine, thereby removing nitrogen oxides in exhaust gas;

said catalyst contains at least one type selected from alkaline metal and alkaline earth metal, Rh, Pt, and CO adsorbent component where the absolute value (ΔH) of CO adsorbent enthalpy on the metal single crystal (111) surface is 142 KJ/mol or more;

said exhaust gas cleaning method further characterized in that the CO desorption temperature reaches the maximum level within the temperature range from 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

2. An exhaust gas cleaning method for internal combustion engine according to Claim 1 characterized in that said CO adsorbent compound comprises at least one type selected from Pd, Ir and Ru.

3. An exhaust gas cleaning method for internal combustion engine characterized in that said catalyst contains at least one type selected from Ti, Si and Zr, and includes a composite oxide comprising said type(s) and at least one type selected from Na, Mg, K, Li, Cs, Sr and Ca.

4. An exhaust gas cleaning method for internal combustion engine according to Claim 1 wherein said catalyst further contains Ce.

5. An exhaust gas cleaning method for internal combustion engine wherein

(1) an exhaust gas cleaning catalyst is placed in the exhaust gas flow path of the internal combustion engine, said catalyst capturing NOx when the air-fuel ratio of exhaust gas is higher than theoretical air-fuel ratio, and removing said captured NOx by reduction when the air-fuel ratio of exhaust gas is equal to or smaller than theoretical air-fuel ratio, and

(2) exhaust gas having an air-fuel ratio higher than theoretical air-fuel and exhaust gas having an air-fuel ratio equal to or smaller than theoretical air-fuel ratio are alternately made to contact said catalyst, thereby removing nitrogen oxides in exhaust gas;

said exhaust gas cleaning method for internal combustion engine being characterized in that said catalyst contains at least one type of alkaline metal or alkaline

earth metal selected from Na, Mg, K, Li, Cs, Sr and Ca on the surface of a porous carrier, Rh, Pt, at least one type selected from Zr and Ti and Si, and at least one type selected from Pd, Ir nd Ru;

wherein the ratios of components relative to 100 parts by weight of said porous carrier are 5 to 30 pts. wt. for alkaline metal or alkaline earth metal in total, 8 to 35 100 pts. wt. for Ti, 3 to 25 pts. wt. for Si, 3 to 25 pts. wt. for Zr, 0.05 to 0.5 pts. wt. for Rh, 1.5 to 5 pts. wt. for Pt, and 0.25 to 3 pts. wt. for Pd, Ir and Ru in total; and where the CO desorption temperature reaches the maximum level within the temperature range from 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

6. An exhaust gas cleaning method for internal combustion engine according to Claim 5 wherein said catalyst further contains alkaline earth metal, and the ratio of said alkaline earth metal relative to 100 parts by weight of said porous carrier is 5 to 50 pts. wt.

7. An exhaust gas cleaning catalyst for internal combustion engine which comprises at least one type selected from alkaline metal and alkaline earth metal, Rh, Pt and the CO adsorbent component where the absolute value (ΔH) of CO adsorbent enthalpy on the metal single crystal

(111) surface is 142 KJ/mol or more, and where the CO desorption temperature reaches the maximum level within the temperature range from 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

8. An exhaust gas cleaning catalyst for internal combustion engine according to Claim 7 wherein said CO adsorbent compound comprises at least one type selected from Pd, Ir and Ru.

9. An exhaust gas cleaning catalyst for internal combustion engine according to Claim 7 wherein said alkaline metal or alkaline earth metal comprises at least one type selected from Na, Mg, K, Li, Cs, Sr and Ca, and contains a composite oxide comprising said element(s) and at least one type selected from Zr and Ti and Si.

10. An exhaust gas cleaning catalyst for internal combustion engine according to Claim 7 which further contains Ce.

11. An exhaust gas cleaning catalyst for internal combustion engine which has on the surface of a porous carrier at least one type selected from alkaline metal and alkaline earth metal, Rh, Pt, at least one type selected

from Ti, Si and Zr, and at least one type selected from Rh, Pt and Ru;

wherein said alkaline metal or alkaline earth metal comprises at least one type selected from Na, Mg, K, Li, Cs, Sr and Ca;

the ratios of components relative to 100 parts by weight of said porous carrier are 5 to 30 pts. wt. for alkaline metal or alkaline earth metal in total, 8 to 35 100 pts. wt. for Ti, 3 to 25 pts. wt. for Si, 3 to 25 pts. wt. for Zr, 0.05 to 0.5 pts. wt. for Rh, 1.5 to 5 pts. wt. for Pt, and 0.25 to 3 pts. wt. for at least one type selected from Pd, Ir and Ru in total;

said exhaust gas cleaning catalyst further characterized in that the maximum CO desorption temperature reaches 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

12. An exhaust gas cleaning catalyst for internal combustion engine according to Claim 11, characterized in that said catalyst further contains rare earth metal, and the ratio of said rare earth metal relative to 100 parts by weight of said porous carrier is 5 to 50 100 pts. wt.

13. An exhaust gas cleaning device for internal combustion engine characterized in that an exhaust gas cleaning catalyst is arranged in the exhaust gas flow path

of said internal combustion engine where there is a flow of exhaust gas having an air-fuel ratio higher than theoretical air-fuel ratio and exhaust gas having an air-fuel ratio equal to or smaller than theoretical air-fuel ratio;

said exhaust gas cleaning device further characterized in that said exhaust gas cleaning catalyst contains at least one type selected from alkaline metal and alkaline earth metal, Rh, Pt, and CO adsorbent component

where the absolute value (ΔH) of CO adsorbent enthalpy on the metal single crystal (111) surface is 142 KJ/mol or more, and where the CO desorption temperature reaches the maximum level within the temperature range from 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

14. An exhaust gas cleaning device for internal combustion engine according to Claim 13 wherein said CO adsorbent component comprises at least one type selected from Pd, Ir and Ru.

15. An exhaust gas cleaning device for internal combustion engine according to Claim 13 wherein said alkaline metal or alkaline earth metal comprises at least one type selected from Na, Mg, K, Li, Cs, Sr and Ca, and contains a composite oxide comprising said element(s) and

at least one type selected from Zr and Ti and Si.

16. An exhaust gas cleaning device for internal combustion engine according to Claim 13 wherein said catalyst further contains Ce.

17. An exhaust gas cleaning device for internal combustion engine characterized in that an exhaust gas cleaning catalyst is arranged in the exhaust gas flow path of said internal combustion engine where there is an alternate flow of exhaust gas having an air-fuel ratio higher than theoretical air-fuel ratio and exhaust gas having an air-fuel ratio equal to or smaller than theoretical air-fuel ratio;

wherein said catalyst further contains on the surface of a porous carrier at least one type selected from alkaline metal and alkaline earth metal, Rh, Pt, at least one type selected from Ti, Si and Zr, and and at least one type selected from Rh, Pt and Ru;

said exhaust gas cleaning device further characterized in that the ratios of components relative to 100 parts by weight of said porous carrier are 5 to 30 pts. wt. for alkaline metal or alkaline earth metal in total, 8 to 35 100 pts. wt. for Ti, 3 to 25 pts. wt. for Si, 3 to 25 pts. wt. for Zr, 0.05 to 0.5 pts. wt. for Rh, 1.5 to 5 pts. wt. for Pt, and 0.25 to 3 pts. wt. for at least one type selected from Pd, Ir and Ru in total; and where the CO

desorption temperature reaches the maximum level within the temperature range from 200 to 220 °C in the event of temperature rise in He gas flow at the rate of 5 to 10 °C/min. after adsorption of CO to said catalyst by saturation at 100 °C.

18. An exhaust gas cleaning device for internal combustion engine according to Claim 17, characterized in that said exhaust gas cleaning catalyst further containing rare earth metal, and the ratio of said rare earth metal relative to 100 parts by weight of said porous carrier is 5 to 50 pts. wt. (Claim 18).